D. Amendment to the Claims

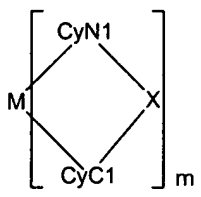
Please amend claims 1, 4 and 8-10 as follows.

1. (Currently Amended) A metal coordination compound represented by the following formula (1):

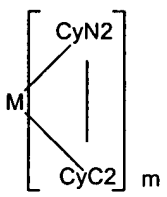
LmML'n (1),

wherein M denotes Ir, Pt, Rh [[Ph]] or Pd; L denotes a bidentate ligand; L' denotes a bidentate ligand different from L; m is an integer of 1, 2 or 3; and n is an integer of 0, 1 or 2 with the proviso that the sum of m and n is 2 or 3,

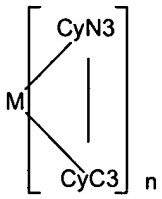
the partial structure MLm being represented by a formula (2) or a formula (3) shown below, and the partial structure ML'n being represented by a formula (4) or a formula (5) shown below:



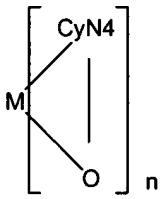
(2),



(3),



(4),

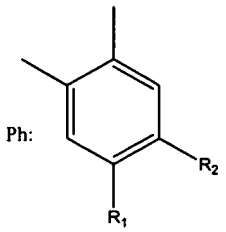


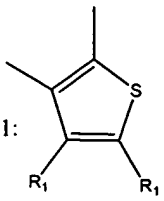
(5),

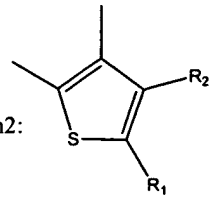
wherein:

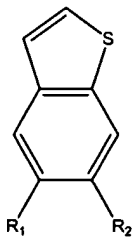
CyN1-CyN4 are independently selected from the group consisting of Pr, Pd, Py1, Pa, Py2, and Pz shown below;

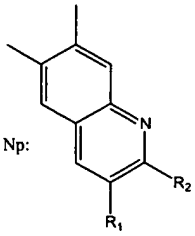
CyN1-CyN4 are independently selected from the group consisting of Ph, Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2 and Pz shown below; and X is selected from the group consisting of O, S, NR, CO, CR2 shown below:

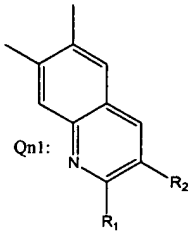
Ph: 

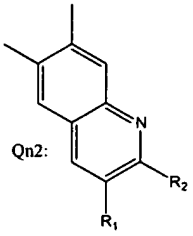
Tn1: 

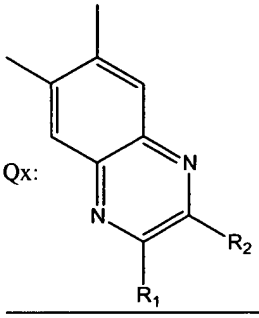
Tn2: 

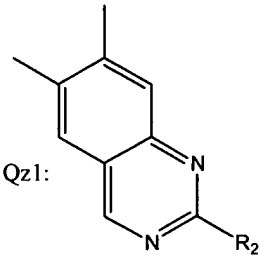
Tn3: 

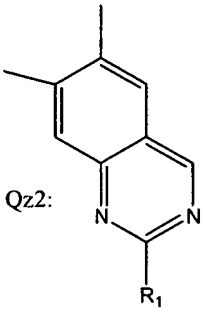
Np: 

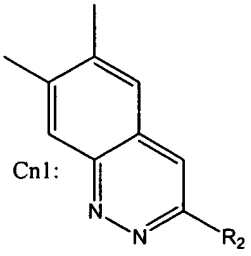
Qn1: 

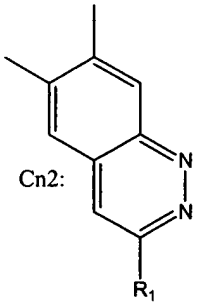
Qn2: 

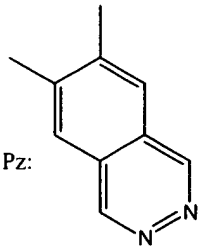
Qx: 

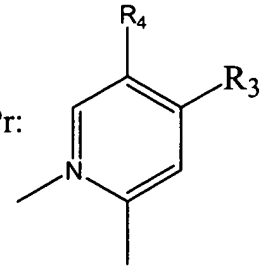
Qz1: 

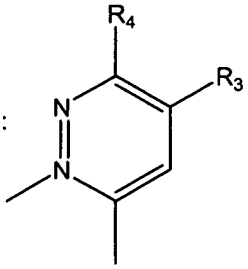
Qz2: 

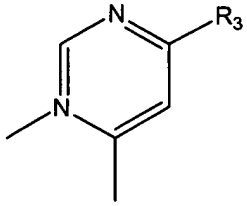
Cn1: 

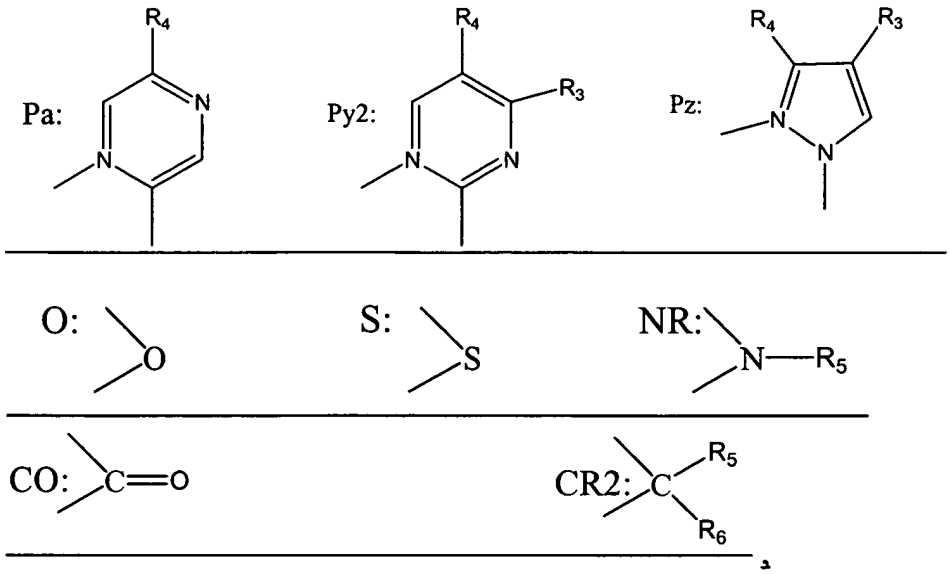
Cn2: 

Pz: 

Pr: 

Pd: 

Py1: 



with the proviso that any one of the following conditions A) to P) is satisfied:

A) MLm is represented by formula (2); M is Ir, Rh, Pd or Pt; m=2 or 3; n=0, CyN1 is Pr, Pd, Py1, Pa, Py2 or Pz; CyC1 is Ph, Tn1, Tn2, Tn3, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2 or Pz;

R_1=H;

R_2=H, CF_3 or OC_2H_5;

R_3=H, CF_3, $COOC_2H_5$ or CH_3;

R_4=H, CF_3, CH_3, OCF_3, or OC_2H_5;

R_5=H, phenyl, naphthyl, CH_3, or C_4H_9; and

R_6=H, CH_3, or C_4H_9;

B) MLm is represented by formula (2); M=Ir; m=2, n=0, CyN1=Pr; L'=CH_3-CO-CH-CO-CH_3; and any one of conditions i) to iv) is satisfied:

i) X=CR2; CyC1=Ph; R_1-R_6=H;

ii) X=CR2; CyC1=Tn1; R_1-R_6=H;

iii) X=CO; CyC1=Tn2; R_1-R_4=H; and

iv) X=CO; CyC1=Tn3; R_1-R_4=H;

C) MLm is represented by formula (2) or (3); ML'n is represented by formula (4); m is 1 or 2; n is 1; M=Ir or Pt; one of CyN1 and CyN2 is Pr; X=O, CO, or NR; one of CyC1 and CyC2 is Ph, Tn1, or Qn1;

R_1-R_4 of L are H; R_5=CH_3 or C_2H_5; CyN3=Pr or Py1; CyC3=Tn1 or Ph; and

R_1 of L' is H or CH_3; and R_2-R_4 =H;

D) MLm is represented by formula (3), ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Pr; CyC2=Ph or Tn1; R_1-R_4=H;

in ML'n, CyN3=Pr; CyC3=Tn3, Np, Qn1, Qn2, Qx, Qz1, Cn1, Cn2, Pz, Ph or Tn3;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

E) MLm is represented by formula (3); ML'n is represented by formula (4), M=Ir; m=1; n=2;

in MLm, CyN2=Pr, CyC2=Ph or Tn1; R_1-R_4=H; and

in ML'n, CyN3=Pr; CyC3 is Tn1, Tn2, Tn3, Np, Qnl, Qn2, Qx, Qz1, Qz2, Cn1, Cn2, Pz or Ph;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

F) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Py1; CyC2=Ph, R_1-R_4=H;

in ML'n, CyN3=Pr; CyC3=Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2, Pz, or Ph;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

G) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=1; n=2;

in MLm, CyN2=Py1; CyC2=Ph; R_1-R_4=H;

in ML'n, CyC3=Pr; CyC3=Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2, Pz, or Ph;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

H) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Py1; CyC2=Ph; R_1-R_4=H;

in ML'n, CyN3=Pz or Pa; and

when CyN3=Pz,

CyC3=Tn1, Tn2, or Tn3; and

R_1-R_4=H;

when CyN3=Pa.

CyC3=Qn1 or Qn2 and

R_1-R_4=H;

I) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Py1;CyC2=Ph, R_1-R_4=H;

in ML'n, CyN3=Py1 or Py2; and

when CyN3=Py1,

CyC3=Cn1, Cn2, or Pz; and

R_1-R_4=H;

when CyN3=Py2 and R_1-R_4=H,

CyC3=Qx, Qz1, or Qz2; and

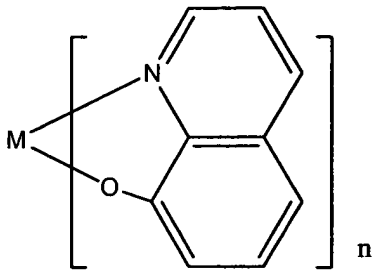
when CyC3=Ph or Tn3,

two of R_1, R_2, and R_4 are H and the remaining one thereof is CH_3;

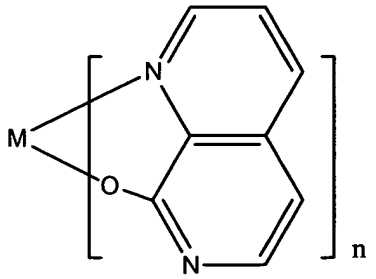
and R_3=H;

J) MLm is represented by formula (3); M=Ir; m=2; n=1; CyN2=Pr, Py1, Py2, Pz, or Pa; CyC2=Ph, Tn1, Tn3, Np, or Qn2; and R_1-R_4=H; and

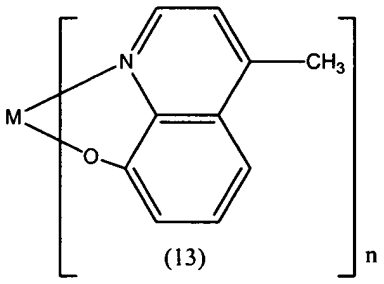
L' is represented by the following formula (11), (12), (13), or (14):



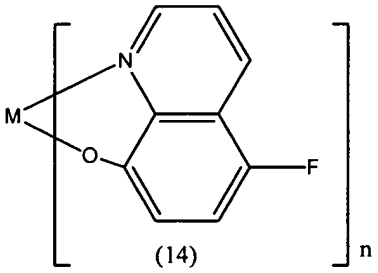
(11)



(12)



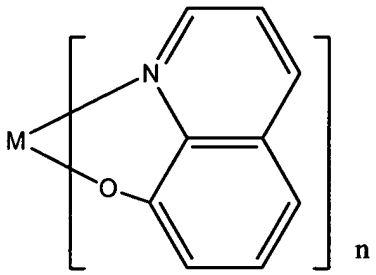
(13)



(14)

K) MLm is represented by formula (3); M=Ir; m=1; n=2; CyN2=Pr, Py1, Py2, Pz, or Pa; CyC2=Ph, Tn1, Tn3, Np, or Qn2 and R_1-R_4=H; and

L' is represented by the following formula (11), (12), (13) or (14):



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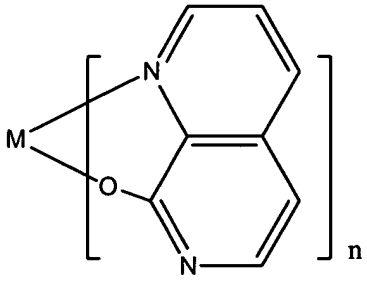

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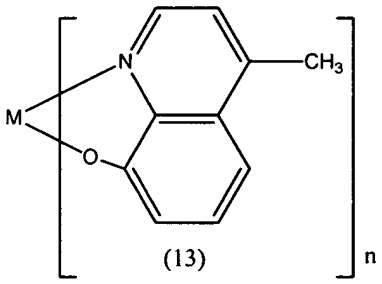

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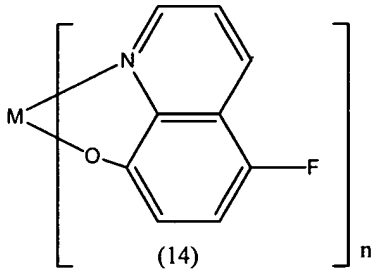


(14)

L) MLm is represented by formula (2), m=2, n=0; M=Ir; CyN1=Pr; X=CR2; CyC1=Ph; R_1-R_4=H; R_5=R_6=F; and L'=CH_3-CO-CH-CO-CH_3;

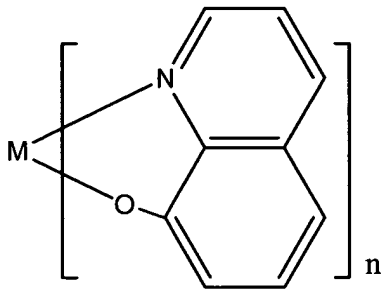
M) MLm is represented by formula (2), m=3; n=0; M=Ir; CyN1=Pr; X=CR2, CyC1=Ph; R_1-R_4=H; and R_5=R_6=F;

N) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1; CyN2=Pr; CyC2=Tn3; CyN3=Pr; CyC3=Ph; and R_1-R_4=H;

O) when M=Pt; m=1; and n=1, CyN2=CyN3=Pr; R_1-R_4 of L are H; CyC2=Ph or Tn1; CyC3=Ph, Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2 or Pz; R_1=R_2=R_4=H or CF_3; and R_3=H; and

P) MLm is represented by formula (3); m=1; n=1; M=Pt; CyN2=Pr, Py1, Py2, Pz or Pa; CyC2=Ph, Tn1, Tn3, Np, or Qn2; and R_1-R_4=H; and

L' is represented by the following formula (11), (12), (13) or (14):



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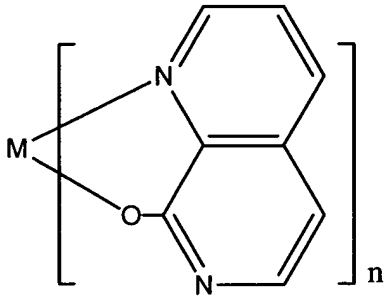

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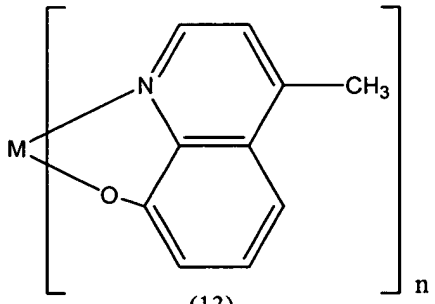
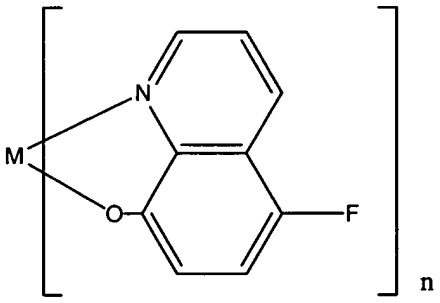


(13)



(14)

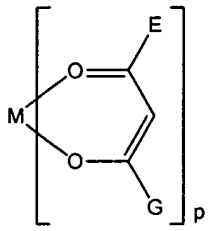
~~wherein CyN1, CyN2 and CyN3 independently denote a substituted or unsubstituted cyclic group containing a nitrogen atom connected to M; CyN4 denotes a cyclic group containing 8-quinoline or its derivative having a nitrogen atom connected to M; CyC1, CyC2 and CyC3 independently denote a substituted or unsubstituted cyclic group containing a carbon atom connected to M, each of substituents for CyN1, CyN2, CyN3, CyC1, CyC2 and CyC3~~

~~being selected from the group consisting of a halogen atom; cyano group; nitro group; a trialkylsilyl group containing three linear or branched alkyl groups each independently having 1 - 8 carbon atoms; a linear or branched alkyl group having 1 - 20 carbon atoms capable of including one or at least two non-neighboring methylene groups which can be replaced with -O-, -S-, -CO-, -CO-O-, -O-CO-, -CH=CH- or -C≡C- and capable of including a hydrogen atom which can be replaced with a fluorine atom; and an aromatic ring group capable of having a substituent selected from the group consisting of a halogen atom; cyano group; nitro group; and a linear or branched alkyl group having 1 - 20 carbon atoms capable of including one or at least two non-neighboring methylene groups which can be replaced with -O-, -S-, -CO-, -CO-O-, -O-CO-, -CH=CH- or -C≡C- and capable of including a hydrogen atom which can be replaced with a fluorine atom, CyN1 and CyC1 being connected via a covalent group containing X which is represented by -O-, -S-, -CO-, -C(R1)(R2)- or -NR- where R1, R2 and R independently denote a hydrogen atom, a halogen atom, an alkyl group, an alkyl group substituted with a halogen atom, a phenyl group or a naphthyl group, and CyN2 and CyC2, and CyN3 and CyC3 being independently connected via a covalent bond, with the proviso that the metal coordination compound is represented by the formula (2) when n is 0.~~

2. (Original) A compound according to claim 1, wherein the partial structure MLm is represented by the formula (2).

3. (Original) A compound according to claim 2, wherein M is Ir.

4. (Currently Amended) A compound according to claim 2, wherein the metal coordination compound has another partial structure represented by the following formula (6):



(6)

wherein M denotes Ir, Pt, Rh [[Ph]] or Pd; p is 1; and E and G independently denote a linear or branched alkyl group having 1 - 20 carbon atom capable of including a hydrogen atom which can be replaced with a fluorine atom, or an aromatic ring group capable of having a substituent selected from the group consisting of a halogen atom; cyano group; nitro group; a trialkylsilyl group containing three linear or branched alkyl groups each independently having 1 - 8 carbon atoms; and a linear or branched alkyl group having 1 - 20 carbon atoms capable of including one or at least two non-neighboring methylene groups which can be replaced with -O-, -S-, -CO-, -CO-O-, -O-CO-, -CH=CH- or -C≡C- and capable of including a hydrogen atom which can be replaced with a fluorine atom.

5. (Original) A compound according to claim 1, which exhibits a phosphorescence at the time of energy transition from an excited state to a ground state.

6. (Original) A compound according to claim 1, wherein one of the ligands L and L' is a luminescent ligand and the other ligand is a carrier transport ligand.

7. (Original) A compound according to claim 1, wherein at least one of the ligands L and L' is in a metal to ligand charge transfer excited state.

8. (Currently Amended) A compound according to claim 1, wherein the ligands L and L' include ~~includes~~ a first ligand capable of providing a first maximum luminescence wavelength $\lambda 1$ based on an excited state thereof and a second ligand capable of providing a second maximum luminescence wavelength $\lambda 2$ shorter than $\lambda 1$, the number of the first ligand providing $\lambda 1$ being smaller than that of the second ligand providing $\lambda 2$.

9. (Currently Amended) A compound according to claim 1, wherein the ligands L and L' include ~~includes~~ a stronger luminescent ligand and a weaker luminescent ligand, the number of the stronger luminescent ligand is smaller than that of the weaker luminescent ligand.

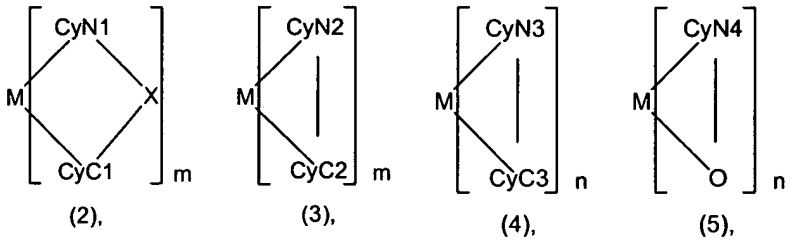
10. (Currently Amended) An organic luminescence device, comprising: a substrate, a pair of electrodes disposed on the substrate, and a luminescence function layer disposed between the pair of electrodes comprising at least one species of an organic compound,

wherein the organic compound comprises a metal coordination compound represented by the following formula (1):

LmML'n (1),

wherein M denotes Ir, Pt, Rh [[Ph]] or Pd; L denotes a bidentate ligand; L' denotes a bidentate ligand different from L; m is an integer of 1, 2 or 3; and n is an integer of 0, 1 or 2 with the proviso that the sum of m and n is 2 or 3,

the partial structure MLm being represented by a formula (2) or a formula (3) shown below, and the partial structure ML'n being represented by a formula (4) or a formula (5) shown below:

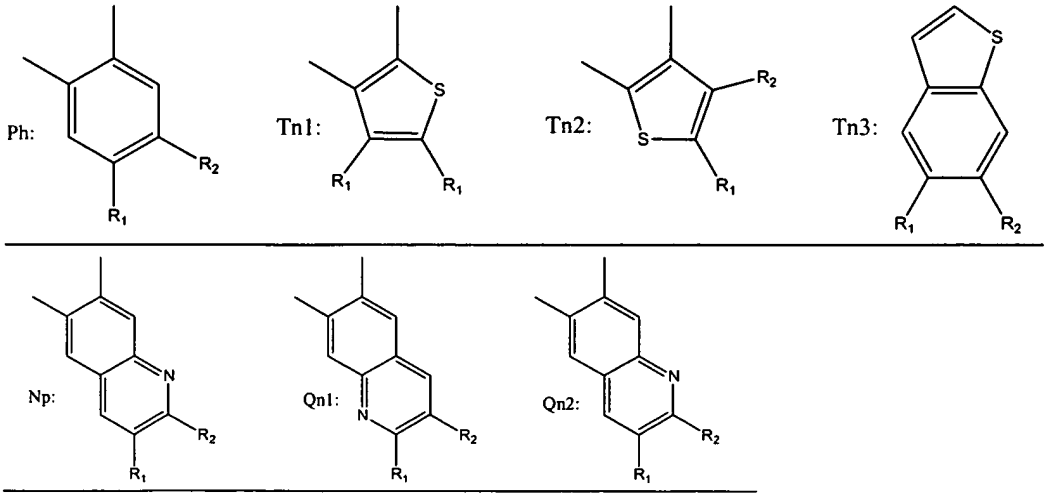


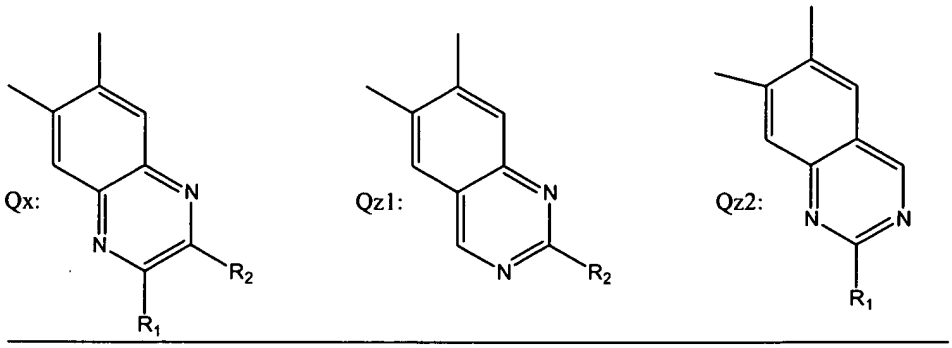
(2), (3), (4), (5),

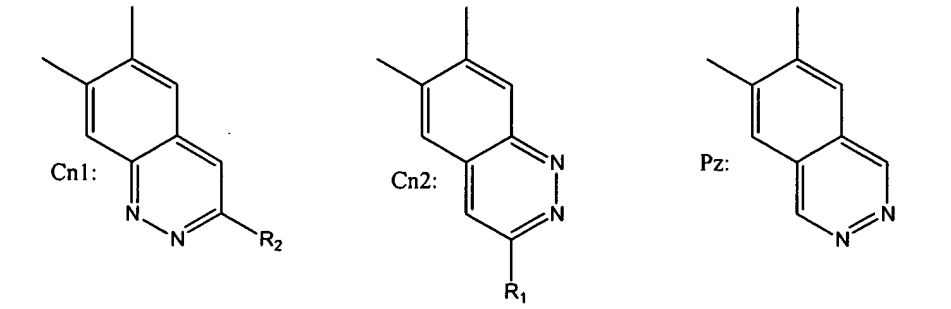
wherein:

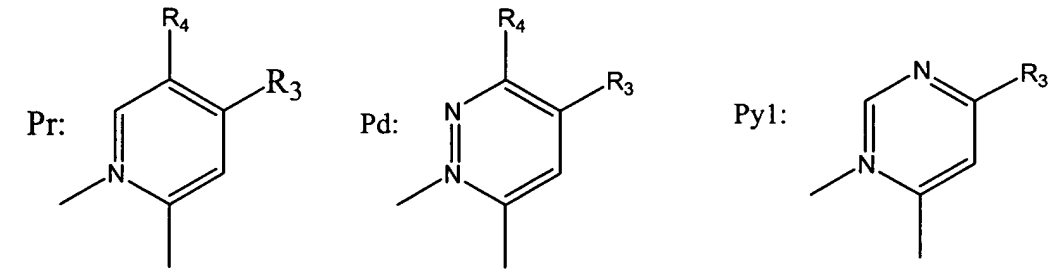
CyN1-CyN4 are independently selected from the group consisting of Pr, Pd, Py1, Pa, Py2, and Pz shown below;

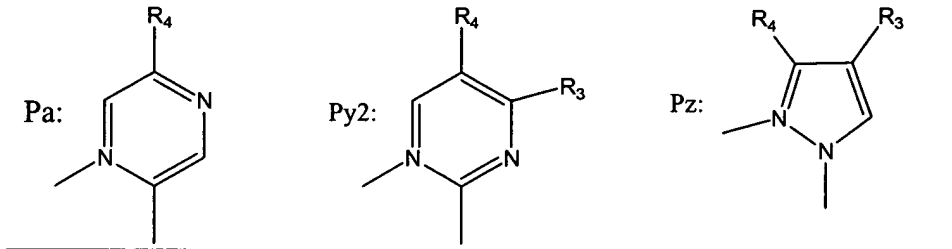
CyN1-CyN4 are independently selected from the group consisting of Ph, Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2 and Pz shown below; and X is selected from the group consisting of O, S, NR, CO, CR2 shown below:

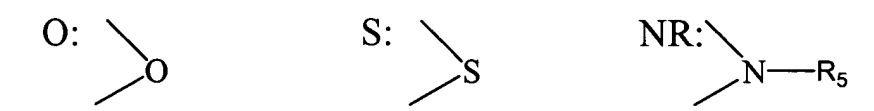


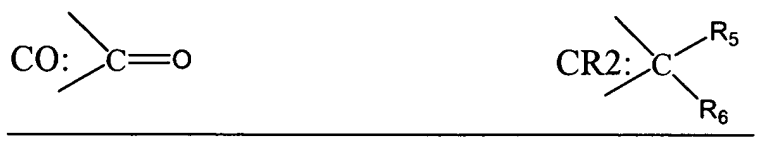












with the proviso that any one of the following conditions A) to P) is satisfied:

A) MLm is represented by formula (2); M is Ir, Rh, Pd or Pt; m=2 or 3; n=0, CyN1 is Pr, Pd, Py1, Pa, Py2 or Pz; CyC1 is Ph, Tn1, Tn2, Tn3, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2 or Pz;

R_1=H;

R_2=H, CF_3 or OC_2H_5;

R_3=H, CF_3, $COOC_2H_5$ or CH_3;

R_4=H, CF_3, CH_3, OCF_3, or OC_2H_5;

R_5=H, phenyl, naphthyl, CH_3, or C_4H_9; and

R_6=H, CH_3, or C_4H_9;

B) MLm is represented by formula (2); M=Ir; m=2, n=0, CyN1=Pr; L'=CH_3-CO-CH-CO-CH_3; and any one of conditions i) to iv) is satisfied:

i) X=CR2; CyC1=Ph; R_1-R_6=H;

ii) X=CR2; CyC1=Tn1; R_1-R_6=H;

iii) X=CO; CyC1=Tn2; R_1-R_4=H; and

iv) X=CO; CyC1=Tn3; R_1-R_4=H;

C) MLm is represented by formula (2) or (3); ML'n is represented by formula (4); m is 1 or 2; n is 1; M=Ir or Pt; one of CyN1 and CyN2 is Pr; X=O, CO, or NR; one of CyC1 and CyC2 is Ph, Tn1, or Qn1;

R_1-R_4 of L are H; R_5=CH_3 or C_2H_5; CyN3=Pr or Py1; CyC3=Tn1 or Ph; and

R_1 of L' is H or CH_3; and R_2-R_4 =H;

D) MLm is represented by formula (3), ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Pr; CyC2=Ph or Tn1; R_1-R_4=H;

in ML'n, CyN3=Pr; CyC3=Tn3, Np, Qn1, Qn2, Qx, Qz1, Cn1, Cn2, Pz, Ph or Tn3;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

E) MLm is represented by formula (3); ML'n is represented by formula (4), M=Ir; m=1; n=2;

in MLm, CyN2=Pr, CyC2=Ph or Tn1; R_1-R_4=H; and

in ML'n, CyN3=Pr; CyC3 is Tn1, Tn2, Tn3, Np, Qnl, Qn2, Qx, Qz1, Qz2, Cn1, Cn2, Pz or Ph;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

F) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Py1; CyC2=Ph, R_1-R_4=H;

in ML'n, CyN3=Pr; CyC3=Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2, Pz, or Ph;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

G) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=1; n=2;

in MLm, CyN2=Py1; CyC2=Ph; R_1-R_4=H;

in ML'n, CyC3=Pr; CyC3=Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2, Pz, or Ph;

R_1=H or CH_3;

R_2=H or CF_3;

R_3=H; and

R_4=H or CF_3;

H) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Py1; CyC2=Ph; R_1-R_4=H;

in ML'n, CyN3=Pz or Pa; and

when CyN3=Pz,

CyC3=Tn1, Tn2, or Tn3; and

R_1-R_4=H;

when CyN3=Pa.

CyC3=Qn1 or Qn2 and

R_1-R_4=H;

I) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1;

in MLm, CyN2=Py1;CyC2=Ph, R_1-R_4=H;

in ML'n, CyN3=Py1 or Py2; and

when CyN3=Py1,

CyC3=Cn1, Cn2, or Pz; and

R_1-R_4=H;

when CyN3=Py2 and R_1-R_4=H,

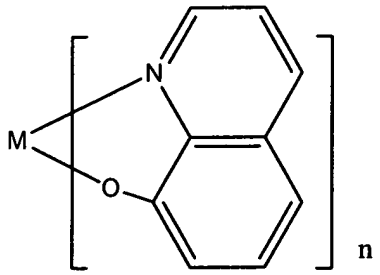
CyC3=Qx, Qz1, or Qz2; and

when CyC3=Ph or Tn3,

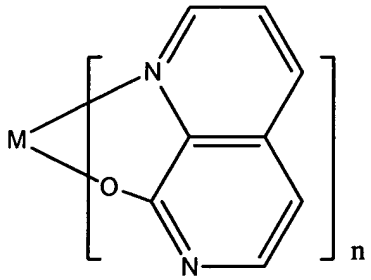
two of R_1, R_2, and R_4 are H and the remaining one thereof is CH_3; and R_3=H;

J) MLm is represented by formula (3); M=Ir; m=2; n=1; CyN2=Pr, Py1, Py2, Pz, or Pa; CyC2=Ph, Tn1, Tn3, Np, or Qn2; and R_1-R_4=H; and

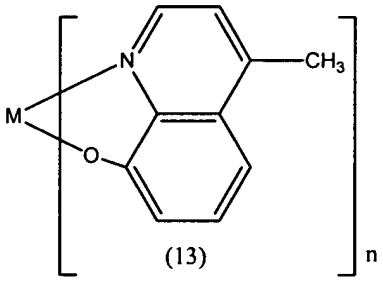
L' is represented by the following formula (11), (12), (13), or (14):



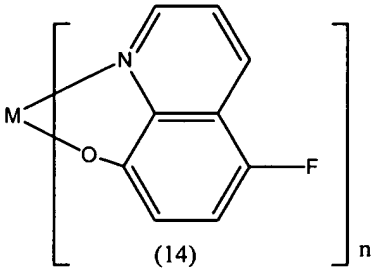
(11)



(12)



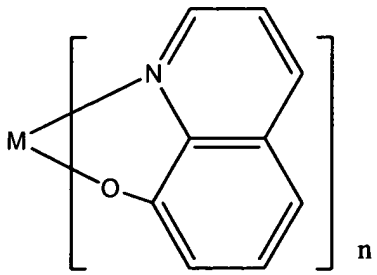
(13)



(14)

K) MLm is represented by formula (3); M=Ir; m=1; n=2; CyN2=Pr, Py1, Py2, Pz, or Pa; CyC2=Ph, Tn1, Tn3, Np, or Qn2 and R_1-R_4=H; and

L' is represented by the following formula (11), (12), (13) or (14):



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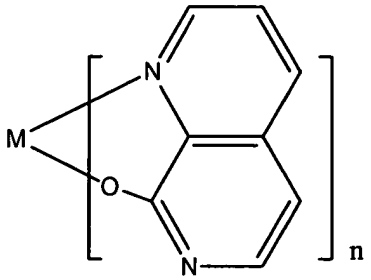

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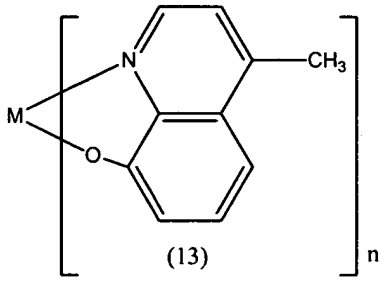

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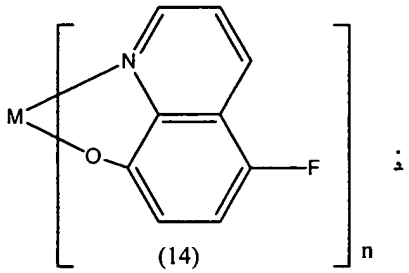


(14)

L) MLm is represented by formula (2), m=2, n=0; M=Ir; CyN1=Pr; X=CR2; CyC1=Ph; R_1-R_4=H; R_5=R_6=F; and L'=CH_3-CO-CH-CO-CH_3;

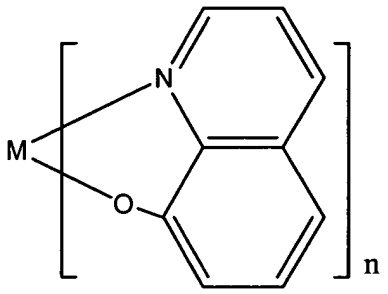
M) MLm is represented by formula (2), m=3; n=0; M=Ir; CyN1=Pr; X=CR2, CyC1=Ph; R_1-R_4=H; and R_5=R_6=F;

N) MLm is represented by formula (3); ML'n is represented by formula (4); M=Ir; m=2; n=1; CyN2=Pr; CyC2=Tn3; CyN3=Pr; CyC3=Ph; and R_1-R_4=H;

O) when M=Pt; m=1; and n=1, CyN2=CyN3=Pr; R_1-R_4 of L are H; CyC2=Ph or Tn1; CyC3=Ph, Tn1, Tn2, Tn3, Np, Qn1, Qn2, Qx, Qz1, Qz2, Cn1, Cn2 or Pz; R_1=R_2=R_4=H or CF_3; and R_3=H; and

P) MLm is represented by formula (3); m=1; n=1; M=Pt; CyN2=Pr, Py1, Py2, Pz or Pa; CyC2=Ph, Tn1, Tn3, Np, or Qn2; and R_1-R_4=H; and

L' is represented by the following formula (11), (12), (13) or (14):



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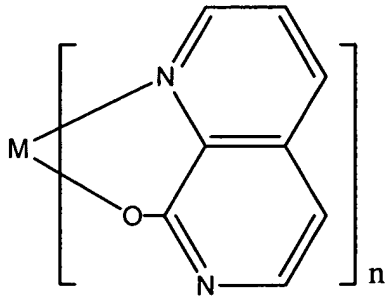

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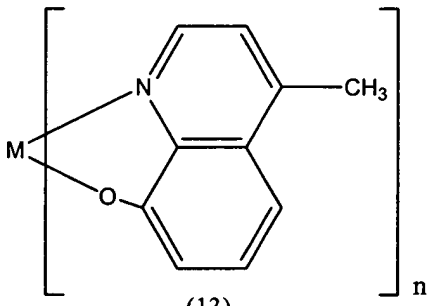
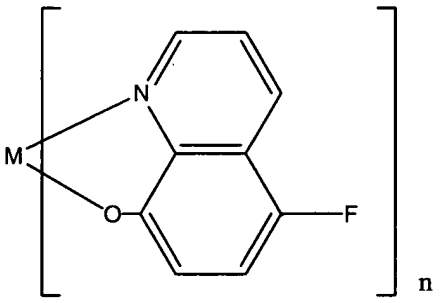


(13)



(14)

~~wherein CyN1, CyN2 and CyN3 independently denote a substituted or unsubstituted cyclic group containing a nitrogen atom connected to M; CyN4 denotes a cyclic group containing 8-quinoline or its derivative having a nitrogen atom connected to M; CyC1, CyC2 and CyC3 independently denote a substituted or unsubstituted cyclic group containing a carbon atom connected to M, each of substituents for CyN1, CyN2, CyN3, CyC1, CyC2 and CyC3~~

~~being selected from the group consisting of a halogen atom; cyano group; nitro group; a trialkylsilyl group containing three linear or branched alkyl groups each independently having 1 - 8 carbon atoms; a linear or branched alkyl group having 1 - 20 carbon atoms capable of including one or at least two non-neighboring methylene groups which can be replaced with -O-, -S-, -CO-, -CO-O-, -O-CO-, -CH=CH- or -C≡C- and capable of including a hydrogen atom which can be replaced with a fluorine atom; and an aromatic ring group capable of having a substituent selected from the group consisting of a halogen atom; cyano group; nitro group; and a linear or branched alkyl group having 1 - 20 carbon atoms capable of including one or at least two non-neighboring methylene groups which can be replaced with -O-, -S-, -CO-, -CO-O-, -O-CO-, -CH=CH- or -C≡C- and capable of including a hydrogen atom which can be replaced with a fluorine atom, CyN1 and CyC1 being connected via a covalent group containing X which is represented by -O-, -S-, -CO-, -C(R1)(R2)- or -NR- where R1, R2 and R independently denote a hydrogen atom, a halogen atom, an alkyl group, an alkyl group substituted with a halogen atom, a phenyl group or a naphthyl group, and CyN2 and CyC2, and CyN3 and CyC3 being independently connected via a covalent bond, with the proviso that the metal coordination compound is represented by the formula (2) when n is 0.~~

11. (Original) A device according to claim 10, wherein the partial structure MLm is represented by the formula (2).

12. (Original) A device according to claim 11, wherein M is Ir.

13. (Original) A device according to claim 10, wherein a voltage is applied between the pair of electrodes to cause phosphorescence from the luminescence function layer.

14. (Original) An image display device, comprising: an organic luminescence device according to claim 10 and means for supplying electrical signals to the organic luminescence device.